

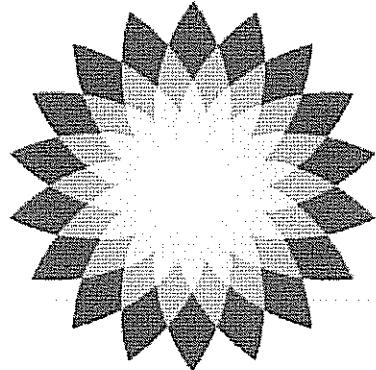


[Exhibit 1, correspondence dated May 14, 2002 from Craig Metcalf, Project Procurement Manager, Pride International, Inc., to Thomas Yost, Hydralift, Inc., regarding BP Specifications for Proposal, has been requested to be filed under seal and is attached as Exhibit 1 to Plaintiffs, BP America Production Company, BP Exploration & Production Inc., and American Home Assurance Company's, Ex Parte Motion for Leave to File Documents Under Seal.]



[Exhibit 2, "Mad Dog Invitation to Bid" dated May 28, 2002, Project Description: Skidding System, has been requested to be filed under seal and is attached as Exhibit 1 to Plaintiffs, BP America Production Company, BP Exploration & Production Inc., and American Home Assurance Company's, Ex Parte Motion for Leave to File Documents Under Seal.]





Gulf of Mexico  
Deepwater Development Program



**MAD DOG**  
DEEPWATER DEVELOPMENT

**TECHNICAL SPECIFICATION  
RIG & BOP SKIDDING EQUIPMENT**

**DOCUMENT No: 1430-60-ME-SP-0013**

REV	DATE	DOCUMENT STATUS	ORIGINATOR	CHECKED	APPROVED	
1	7 Feb 03	Revised & Re-Issued for Purchase (AFC)	DS	VN	MD	
0	9 Dec 02	Issued for Purchase (AFC)	TFS	VN	MD	
B	11 Nov 02	Issued for Enquiry	TFS	DA		
A	20 July 02	Issued for IDC	TFS			

Document Control Number	Job Number	Area/Unit Designation	Discipline Code	Document Type	Sequence Number	Document Revision
	1430	60	ME	SP	0013	1

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	2 of 36
Project Description:	Mud Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

## TABLE OF CONTENTS

1.0	INTRODUCTION .....	3
2.0	SCOPE.....	4
3.0	REFERENCE DOCUMENTS.....	6
4.0	TECHNICAL REQUIREMENTS.....	8
5.0	DESIGN DATA.....	16
6.0	FUNCTIONS AND OPERATIONS.....	18
7.0	INSPECTION AND TESTING REQUIREMENTS.....	19
8.0	SUPPLIER DATA REQUIREMENTS .....	22
9.0	ATTACHMENTS.....	23

ATTACHMENT A – RELEVANT INDUSTRY CODES AND STANDARDS

ATTACHMENT B - GENERAL ENVIRONMENTAL DATA

ATTACHMENT C – RELAVANT PROJECT SPECIFICATIONS

ATTACHMENT D – SUPPLIER EXCEPTIONS TO PROJECT SPECIFICATIONS

ATTACHMENT E - ACRONYMS

ATTACHMENT F – UNITS OF REFERENCE

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	3 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

## 1.0 INTRODUCTION

### 1.1 General

This specification defines the requirements for the **Rig & BOP Skidding Equipment**, which will be utilized in the Drilling Facilities for the BP GoM Mad Dog project, a Spar-type production platform located in the Gulf of Mexico (GOM).

BP Exploration and Development Inc., has contracted Pride Offshore Inc, to design, fabricate and commission the packaged drilling facility to be installed on the offshore installation. Whereas the contract (BPA-02-06080) addresses the equipment to be selected for the specified drilling operations, this specification confirms the equipment purchased by Pride Offshore Inc. (Pride), on behalf of BP Exploration and Development Inc. (BP), and as such forms part of the master philosophy documentation.

To manage the specifications and liaison with the Suppliers, Pride has allocated professional mechanical package engineers who, in conjunction with Pride's purchasing and QA groups, ensures the Supplier complies with the required technical specifications and the relevant project codes and standards. This document also addresses any exceptions the Suppliers may have raised with Pride in the course of the purchasing cycle, which have been approved by BP and Pride. These are found in Attachment D.

This document is to be read in conjunction with Pride's purchase order for the subject scope of supply and the Supplier's quotation.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	4 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

## 2.0 SCOPE

### 2.1 Scope of document

The scope of this technical specification is to cover the requirements for the design, construction, materials, testing, and preparation for shipment to the erection site.

### 2.2 Scope of supply

#### 2.2.1 Supplier responsibility

The Supplier has the overall unit responsibility to provide and coordinate a complete package, which shall be fit for its intended purpose offshore GOM.

#### 2.2.2 Supplier scope of supply

Unless otherwise stated, the scope of supply for the **Rig & BOP Skidding Equipment** shall include the following features, services and items:

- One (1) Rig Skidding Unit No. 1 (Skidbase North / South movement)
- One (1) Rig Skidding Unit No. 2 (Skidbase North / South movement)
- One (1) Rig Skidding Unit No. 1 (DES East / West movement)
- One (1) Rig Skidding Unit No. 2 (DES East / West movement)
- One (1) Rig Skidding Control Cabinet/Panel
- One (1) BOP Skidding Unit No. 1 (BOP Transportation Frame East / West movement)
- One (1) BOP Skidding Unit No. 2 (BOP Transportation Frame East / West movement)
- One (1) BOP Skidding Control Panel
- One (1) BOP Lift Cylinder No. 1
- One (1) BOP Lift Cylinder No. 2
- One (1) BOP Lift Control Panel

Note!     DES = Derrick Equipment Set  
               BOP = Blowout Preventer

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	5 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

### 2.2.3. Pride responsibility

The Pride scope of supply for the **Rig & BOP Skidding Equipment** shall include the following features, services and items.

- a. Technical liaison
- b. Provide facility for technical clarification and schedule clarification.
- c. QA audit at Supplier's facility
- d. Expedite order, with regular progress meeting/inspection
- e. Factory acceptance test
- f. Pre-shipment inspection
- g. Ex-works collection and shipment to site
- h. Goods receiving and warehousing at site
- i. Notification of change procedures
- j. Confirmation of commissioning requirements

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	6 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

### 3.0 REFERENCE DOCUMENTS

#### 3.1 Applicable documents

The equipment as supplied under this specification shall comply with the BP Mad Dog specifications and industry standards listed in Attachments A and C, unless otherwise indicated.

Pride shall indicate in Attachment D the BP/Pride-approved Supplier exceptions to these specifications, for reference.

The BP Mad Dog and industry standards referenced in this document, applies to the latest edition in effect at the time of the purchase order. Should any referenced BP Mad Dog project or industry standard be revised after the issue of the purchase order, the Supplier shall notify Pride in writing to receive resolution of the conflict before proceeding.

In case of conflicting statements within the referenced documents, the following is the priority listing of said documents:

- a. Purchase order and subsequent change order(s)
- b. Contract
- c. Data sheet
- d. This specification
- e. Project drawings
- f. Project specifications (contract attachments)
- g. International practices (IP)
- h. Government and industry

#### 3.2 Data sheets

The Data Sheets for the **Rig & BOP Skidding Equipment** shall be prepared when Supplier provides the necessary design data to Pride. When the data is approved by BP/Pride, Pride shall prepare the necessary Data Sheets, which shall tie-in with Pride's O&M Maximo program.

#### 3.3 Project specifications

The project specific documents addressed in Attachment C shall apply. The list of BP Mad Dog specifications is not intended to be complete. Should Supplier find other referenced specification(s) noted, and required for the timely completion of his tasks, the Supplier is responsible to obtain said specification(s) by requesting these from Pride.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	7 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

### **3.4 Governmental and industry standards**

Refer to Attachment A for listing of relevant government and industry standards.

### **3.5 Acronyms**

Refer to Attachment E for Acronyms to be used .

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	8 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

## 4.0 TECHNICAL REQUIREMENTS

### 4.1 Design principles and data

#### 4.1.1 Technical Notes

The Rig & BOP Skidding Equipment is part of the topside equipment to be installed on the BP Mad Dog platform. The supplier should note that the platform will be Offshore GOM and subject to the weather and sea conditions associated with the location. The sea condition will generate motions and accelerations detrimental to the Rig & BOP Skidding Equipment. The supplier shall take all precaution in the design of the Rotary Table/ Power Slips to accommodate all restrictive data shown in appendix "B" "BP Mad Dog general environmental data", and all other applicable specifications.

Further, in addition, the criticality of the supplier providing accurate weight reporting, including center of Gravity cannot be overemphasized, as these are key parameters in the weight control program associated with a floating structure.

The supplier shall design the Rig & BOP Skidding Equipment for all deflections, stresses and fatigue expected, due to the spar motions and accelerations. The supplier shall work with Pride in confirming the design deflections, accelerations and fatigue of the Rig & BOP Skidding Equipment based on the supplier design. This will insure that the supplier Rig & BOP Skidding Equipment is properly designed and integrated into the drilling facility. Refer to the BP Mad Dog specification of record for additional guidance.

#### 4.1.2 Safety

At Pride International Inc, safety is of utmost concern; it is therefore requested that all safety features be incorporated in the design with the highest possible safety factor for the attending operating personnel onboard.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	9 of 36
Project Description:	Mud Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

### 3.2 TECHNICAL REQUIREMENTS

#### 3.2.1 RIG SKIDDING JACKS

- 3.2.1.1 The gripper jack loads stated herein does not include environmental loadings due to wind and ice formation. No addition has been made for overcoming breakout loads. The Supplier shall specify his normal and breakout coefficients of friction for the material used. The gripper jacks shall be suitable for operating in a maximum wind speed during skidding indicated in section 5.0.
- 3.2.1.2 The primary function of the gripper jacks is to move the drilling Skidbase/DES and the DES to align with any one of the well slots in a 4 x 4 Well Pattern. The Jacking/Clamping system to be designed so the Skidbase and/or DES remains attached (clamped) to the rails at all times (when one part of the clamp system releases the other part remains clamped).
- 3.2.1.3 Two (2) hydraulic gripper jacks shall be provided to facilitate skidding of the Skidbase in a North / South direction. Each jack shall to be designed for a push/pull load based on loadings given in section 5.0, with a steel to steel coefficient of friction of 0.25
- 3.2.1.4 Two (2) hydraulic gripper jacks shall be provided to facilitate skidding of the DES in a East / West direction. Each jack shall to be designed for a push/pull load based on loadings given in section 5.0, with a steel to steel coefficient of friction of 0.25
- 3.2.1.5 Jacking cylinders shall be double acting with approx. 2 ft, stroke and are to be supplied with a housing terminating in a clevis connection complete with connection pin to suit Purchaser pad eyes, and to take up any misalignment. They shall be provided with lifting lugs to facilitate installation and removal.
- 3.2.1.6 The jacking cylinder bodies are to be connected to the Skidbase/DES, with the rod ends connected to the gripper units
- 3.2.1.7 The gripper units shall be constructed to clamp and slide over the flanges as indicated in section 5.0. Suppliers shall confirm that the weather deck skid rails and Skidbase flanges are adequate for the loads imposed upon them by the gripper jacks (during detail design).
- 3.2.1.8 Cylinder rods and pistons are to be made from material suitable for the environment and suitably plated. Supplier shall advise materials and surface finish proposed to ensure against corrosion and leakage.
- 3.2.1.9 Jacks to be fitted with quick release self sealing hydraulic couplings on all external hydraulic connections.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	10 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

3.2.1.10 Greasing points shall be provided and located to allow ease of access for routine maintenance.

3.2.1.11 Each gripper jack assembly shall be supplied with a flexible hose set to connect between each cylinder and gripper unit, and purchaser pipework. The hoses shall be of sufficient length to cover the cylinder stroke and angular alignment. All termination's are to be self closing quick release couplings, both halves of the coupling are to be provided and each connection clearly identified. Type and material for flexible hoses shall be subject to Purchasers review and approval.

3.2.1.12 Supplier shall advise of hydraulic flow and pressure requirements to suit the specified operating conditions and jacking loads.

### 3.2.2 RIG SKIDDING / BOP LIFT CYLINDER CONTROL CABINET

3.2.2.1 One (1) RIG SKIDDING / BOP LIFT CYLINDER CONTROL CABINET to be located on lower deck floor (DES1).

3.2.2.2 The cubicle is to house all hydraulic components for both Rig Skidding & BOP lifting systems such as Rig Skidding Intensifier to increase pressure from 3000psi to 5000psi, PCV's , flow dividers , flow control valves etc. The circuitry to be based on a constant pressure system, PCV's to have closed centre positions.

3.2.2.3 All cylinders will have their own valves to allow independent as well as simultaneous operation. Hydraulic circuitry to be such that (under unequal loading conditions) synchronised operation of the right and left Rig Skidding Jacks is achieved with an inaccuracy of less than 3%.

3.2.2.4 Flow control valves to be incorporated in the circuitry so that the speeds indicated in section 5.0 are achieved.

3.2.2.5 The Rig Skidding /BOP lift Control Cabinet to be designed for floor mounting, and to be enclosed with removable panels at each side and two hinged doors at the front. The Cabinet shall be fabricated such that it's IP rating is the maximum that can be practically achieved. All electrical and instrument components housed within shall have an IP 56 rating. The framework to be in steel and the double doors to be in stainless steel. The bottom of the cabinet to double as a drip tray.

3.2.2.5 One (1) Electrical Junction Box to be mounted on top of the Rig Skidding / BOP Control Panel and contain all the necessary control logic. This box to be fitted with power on/off

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	11 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

switch and a switch for selection of Skidbasebase East / West or DES North / South The box to be Ex certified.

### 3.2.3 FIXED RIG SKIDDING CONTROL PANEL

3.2.3.1 One (1) Fixed Rig Skidding Control Panel incorporated in the Control Cabinet for controlling the North/South and East/West Rig Skidding Jacks. The Panel to contain the following control functions :-

- a) Joystick for push/neutral/retract of the left and right Rig Skidding Jacks simultaneously.
- b) Push button for left Jack extend.
- c) Push button for left Jack retract.
- d) Push button for right Jack extend.
- e) Push Button for right Jack retract.
- f) Key to switch the panel on/off combined with emergency stop (mushroom type)

### 3.2.4 BOP LIFT CYLINDER CONTROL PACKAGE

3.2.4.1 The BOP Lift Cylinder Control Package to be located near well centre at the Lower Deck Level (DES1)

3.2.4.2 One (1) BOP Lift Control Panel. The BOP Lift Control Panel to contain the following control functions:

- a) Joystick for lift/neutral/lower of both cylinders simultaneously High Speed.
- b) Joystick for lift/neutral/lower of both cylinders simultaneously Low Speed.
- c) Push button for left Jack Lift Low Speed.
- d) Push button for left Jack lower Low Speed.
- e) Push button for right Jack lift Low Speed.
- f) Push button for right Jack lower Low Speed.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	12 of 36
Project Description:	Mad Dog Project - Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

g) Key to switch the panel on/off combined with emergency stop (mushroom type)

### 3.2.5 BOP LIFT CYLINDERS

- 3.2.5.1 Two (2) BOP Lift Cylinders used for lifting and holding the BOP and riser (if required) for cutting operations.
- 3.2.5.2 Each lifting cylinder to be provided with single eye at both the rod and cylinder end. These eyes shall be fitted with spherical bearings.
- 3.2.5.3 Hydraulic connections shall be 3/8 NPT and located at the housing support end thus allowing matched length hoses. Each cylinder to be equipped with a suitable valve system to prevent the load falling in the event of hose failure. A valve system is also required for lifting and operations, the cylinders must work together simultaneously.
- 3.2.5.4 Each cylinder to be rated at 100 tonne (push / pull) with a stroke length of 4 ft. The Rig hydraulic system having a maximum operating pressure of 3,000 psi.
- 3.2.5.5 Each cylinder to be equipped with Two (2) flexible hoses 4 ft long complete with stainless steel hose fittings, and couplings to be self closing quick release type.

### 3.2.6 BOP SKIDDING JACKS

- 3.2.6.1 The gripper jack loads stated herein does not include environmental loadings due to wind and ice formation. No addition has been made for overcoming breakout loads. The Supplier shall specify his normal and breakout coefficients of friction for the material used. The gripper jacks shall be suitable for operating in a maximum wind speed during skidding indicated in section 5.0.
- 3.2.6.2 The primary function of the gripper jacks is to move the BOP Transportation Frame from storage position to Centrewell area. The Jacking/Clamping system to be designed so the BOP Frame remains attached (clamped) to the rails at all times (when one part of the clamp system releases the other part remains clamped).
- 3.2.6.3 Two (2) hydraulic gripper jacks shall be provided to facilitate skidding of the BOP Transportation Frame in a East / West direction. Each jack shall to be designed for a push/pull load based on loadings given in section 5.0, with a steel to steel coefficient of friction of 0.25

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	13 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

3.2.6.5 Jacking cylinders shall be double acting with approx. 14" (TBC), stroke and are to be supplied with a housing terminating in a clevis connection complete with connection pin to suit Purchaser pad eyes, and to take up any misalignment. They shall be provided with lifting lugs to facilitate installation and removal.

3.2.6.6 The jacking cylinder bodies are to be connected to the BOP Transportation Frame, with the rod ends connected to the gripper units. These must be easily removable to allow removal from the BOP Frame and reconnection to the Xmas Tree Transportation Frame.

3.2.6.7 The gripper units shall be constructed to clamp and slide over the flanges as indicated in section 5.0.

3.2.6.8 Cylinder rods and pistons are to be made from material suitable for the environment and suitably plated. Supplier shall advise materials and surface finish proposed to ensure against corrosion and leakage.

3.2.6.9 Jacks to be fitted with quick release self sealing hydraulic couplings on all external hydraulic connections.

3.2.6.10 Greasing points shall be provided and located to allow ease of access for routine maintenance.

3.2.6.11 Each gripper jack assembly shall be supplied with a flexible hose set to connect between each cylinder and gripper unit, and purchaser pipework. The hoses shall be of sufficient length to cover the cylinder stroke and angular alignment. All termination's are to be self closing quick release couplings, both halves of the coupling are to be provided and each connection clearly identified. Type and material for flexible hoses shall be subject to Purchasers review and approval.

3.2.6.12 Supplier shall advise of hydraulic flow and pressure requirements to suit the specified operating conditions and jacking loads.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	14 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

### 3.2.7 BOP TRANSPORTATION CONTROL CABINET

- 3.2.7.1 One (1) BOP TRANSPORTATION CONTROL CABINET to be located on the Drilldeck (east side outside Centrewell area).
- 3.2.7.2 The cubicle is to house all hydraulic components for BOP Transportation systems such as PCV's , flow dividers , flow control valves etc. The circuitry to be based on a constant pressure system, PCV's to have closed centre positions.
- 3.2.7.3 All cylinders will have their own valves to allow independent as well as simultaneous operation. Hydraulic circuitry to be such that (under unequal loading conditions) synchronised operation of the right and left Rig Skidding Jacks is achieved with an inaccuracy of less than 3%.
- 3.2.7.4 Flow control valves to be incorporated in the circuitry so that the speeds indicated in section 5.0 are achieved.
- 3.2.7.5 The BOP Transportation Control Cabinet to be designed for floor mounting, and to be enclosed with removable panels at each side and two hinged doors at the front. The Cabinet shall be fabricated such that it's IP rating is the maximum that can be practically achieved. All electrical and instrument components housed within shall have an IP 56 rating. The framework to be in steel and the double doors to be in stainless steel. The bottom of the cabinet to double as a drip tray.
- 3.2.7.6 One (1) Electrical Junction Box to be mounted on top of the BOP Transportation Control Panel and contain all the necessary control logic. This box to be fitted with power on/off switch and to be Ex certified.

### 3.2.8 PIPING and VALVES

- 3.2.8.1 The hydraulic piping and fittings shall be a combination of rigid stainless steel pipework, high pressure hoses and high pressure fittings as employed in high pressure hydraulic fluid applications and be generally in accordance with the SUPPLIERS standard specification.
- 3.2.8.2 All piping and valves shall be in accordance with the Vendor's standard piping specification, subject to purchasers review and approval.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	15 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

- 3.2.8.3 All piping in the Vendor's scope of supply shall terminate at the edge of the skid with SUPPLIER standard connections.
- 3.2.8.4 All interconnecting hydraulic lines will be run in stainless steel pipe and fittings.
- 3.2.8.5 Hydraulic hoses shall be in accordance with National Standards. Length and sizes of hoses shall be optimised to reduce the spares stock holding. The use of hydraulic hose shall be for essential use only and should be kept to a minimum requirement.
- 3.2.8.6 The piping / hoses shall be laid out neatly, allow access to all components, be adequately supported against vibration and protected against damage where necessary.
- 3.2.8.7 All other interconnecting piping between the Rig Skidding / BOP Lift System and end users shall be by others.
- 3.2.8.8 All piping shall be cleaned and flushed prior to function testing of equipment to NAS1638-class 6 as a minimum standard for hydraulic systems.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	16 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

## 5.0 Design Data

### 5.1 Rig Skidding Requirements

- 5.1.1 The Gripper Jacks/clamps shall be suitable for operating in a maximum wind speed during skidding of 52 ft/sec at piperack elevation.
- 5.1.2 The Gripper Jack clamps shall be suitable for holding in a maximum wind condition (10 year storm condition) of 64.2 ft/sec at piperack elevation.
- 5.1.3 The Gripper Jack clamps shall be suitable for holding in a hurricane wind condition (hurricane standby condition) of 147.7 ft/sec at piperack elevation.
- 5.1.4 Jacking Cylinders stroke = 2 ft.
- 5.1.5 Estimated weight of DES = 1,700 Tonnes Including full setback (but not including breakout forces)
- 5.1.6 Estimated weight of DES & Skidbase = 2,000 Tonnes Including full setback (but not including breakout forces)
- 5.1.7 Skidbase/Drill Deck Flange 56" (1422 mm) wide x 2.25" (57 mm) thick.
- 5.1.8 DES/Skidbase Flange 38" (965 mm) wide x 3.0" (76 mm) thick .
- 5.1.9 Flow control valves to be incorporated in the circuitry such that the following speeds are achieved:
  - a) Skidding to have an average speed of approx. 1/8"/sec (7-1/2"/min)

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	17 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

## 5.2 BOP Lift Cylinder Requirements

- 5.2.1 Lift Cylinders (x 2) stroke = 4 ft.
- 5.2.2 Lift Capacity per cylinder = 100 tonnes
- 5.2.3 Flow control valves to be incorporated in the circuitry such that the following speeds are achieved:
  - a) BOP Lowering / Hoisting high speed approx. 5/8" – 7/8"/sec (37-1/2" – 52-1/2"/min)
  - b) BOP Lowering / Hoisting low speed approx. 1/8" – 3/16"/sec (7-1/2" – 11-1/4"/min)

## 5.3 BOP Transportation Skidding Requirements

- 5.3.1 The Gripper Jacks/clamps shall be suitable for operating in a maximum wind speed during skidding of 52 ft/sec at pipedeck elevation.
- 5.3.2 The Gripper Jack clamps shall be suitable for holding in a maximum wind condition (10 year storm condition) of 64.2 ft/sec at pipedeck elevation.
- 5.3.3 The Gripper Jack clamps shall be suitable for holding in a hurricane wind condition (hurricane standby condition) of 147.7 ft/sec at pipedeck elevation (BOP restraint will also be required).
- 5.3.4 Jacking Cylinders stroke = 14" (TBC)
- 5.3.5 Estimated weight of BOP & Transportation Frame = 70 Tonnes (but not including breakout forces)
- 5.3.6 Drilldeck Beam Flange TBC during detail design
- 5.3.7 Flow control valves to be incorporated in the circuitry such that the following speeds are achieved:
  - a) Skidding to have an average speed of approx. 1/8"/sec (7-1/2"/min)

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	18 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

#### 5.4 Environmental Data

See Attachment "C".

#### 5.5 Design Codes and Hazardous Areas

The area immediately around well center (1.5m radius) is a zone 1 area, the rest of the drill-floor is classified as a zone 2 area. The zone 2 area extends up to the top of the drill-floor wind-wall. The RST to be designed to operate in a zone 1 hazardous area. All electrical equipment to be certified for zone 1.

#### 5.6 Relevant codes and standards

As per attachment "A" and the following :

- API RP 2A      Recommended practices for planning, designing and constructing fixed Offshore Platforms
- API 521      Guide for pressure relief and de-pressuring systems
  
- API 550      Instruments and Control Systems (hydraulic systems)  
Part 1, section 10

#### 5.7 Design Verification

**The nominated BP Certifying Authority for the Mad Dog project is ABS.**

Thirty party inspectors (such as DNV) can be used providing ABS validates relevant certifying documentation (Level of inspection to be confirmed with Purchaser).

#### 6.0 FUNCTIONS AND OPERATIONS

N/A

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	19 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

## 7.0 INSPECTION AND TESTING REQUIREMENTS

### 7.1 General

The Supplier shall implement a Quality Assurance system that complies with the specification 1400-20-QA-SP-9001- Project Quality Assurance General Requirements.

### 7.2 Inspection and testing

#### 7.2.1 Scope

This section contains the details of all tests to be performed, documented and witness by BP and Pride. BP and Pride, at their option, may witness the test or may send a third party inspector(s) as their representative.

#### 7.2.2 Procedure

The Supplier shall provide Pride a test acceptance procedure for review.

#### 7.2.3 Schedules

The Supplier shall notify Pride ten (10) working days in advance of the test or weighing to be performed. Pride requests that a monthly progress report of the supplied equipment.

### 7.3 Preparation for shipping

The Supplier shall follow requirements regarding documentation, packaging and marking instructions as stipulated in instructions to bidders. ALL documentation shall be sent separately to Pride's purchasing manager.

### 7.4 Weight and Center of Gravity Control

#### 7.4.1 Weighing

Each assembly or loose item weighing more than 500 LBS shall be weighed prior delivery. Only weighing of one (1) identical item of unit is required.

#### 7.4.2 Weighing equipment requirement

At a date corresponding to the SDRL, a weighing procedure shall be submitted to Pride for review.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	20 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

The load cell to be used shall have calibration certificate, dated within the last six (6) month at the time of use. These certificates shall be available to Pride's representative prior to weighing.

Three (3) weighings of each item or assembly shall be performed. Between each weighing the loadcells shall be rotated 120 degrees.

Only dry weight and plan CoG shall be verified by weighing.

The Supplier shall submit weight data on a "Supplier Weight & Center of Gravity Data Sheet".

The weight information shall be submitted as per the dates in the SDRL, when a change occurs which impact the weight by more than 500 Lbs and when the weighing of the equipment is completed.

A data sheet shall be completed for each separate skid and/or loose piece kit of equipment. The data is to reflect installed condition.

For detailed BP Mad Dog weight control requirements, see specification 140-20-ST-SP-1052 - Weight Control Requirements.

#### 7.4.3 Detail Weight and Center of Gravity Requirement

Standard items less than 100 Lbs shall not required a "Supplier Weight & Center of Gravity Data Sheet", A catalogue data sheet shall be sufficient.

#### 7.4.4 Supplier Weight and Center of Gravity Data sheet (SWCGDS)

Instruction for completing a SWCGDS:

- Equipment number should be the prime equipment number followed by the secondary numbers whose weights are included.
- Sketch of equipment to include at least a plan and elevation. Show features that clearly define the orientation such as: center line, discharge nozzle etc. Show the center of Gravity as a circle with cross air and the CoG Both the plan and elevation shall be shown.
- The weight shall be posted in short tons
- Place the name, title date and signature of the Supplier authorized representative on the SWCGDS cover sheet.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	21 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

#### 7.4.5 Component Tagging and Labeling

Each component nominated by Pride shall have a unique equipment number assigned by Pride, in accordance with BP Mad Dog project engineering numbering system.

Equipment number assigned to the component shall be used throughout the project.

When an item is deleted, its equipment number shall not be re-assigned to another item, but will be voided.

#### 7.4.6 Nameplate

The nameplate shall be made from stainless steel material and shall be provided for each item of equipment.

The nameplate shall be of rectangular shape. Minimum dimension shall be 4 inch by 2 inch. Minimum lettering size shall be 3/8 inch high. Upon approval by Pride smaller nameplate or different shape can be used, depending on space availability.

The following minimum information shall be shown on the nameplate:

- Equipment name
- Tag number
- Model Number
- Purchase Order Number

Where required

- Electrical Certification
- Design pressure/ temperature
- Test pressure
- Regulatory required stamps

The Supplier shall submit to Pride a schedule of nameplate for approval.

The fastening of the nameplate to the equipment shall be achieved using stainless steel screws or sixteen (16) gage wire.

#### 7.5 Preservation

The Supplier shall furnish a preservation procedure that complies with BP project specification 1400-20-CO-SP-8050 - Material receipt, Handling, Storage, Preservation and Protection.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	22 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

## 8.0 SUPPLIER DATA REQUIREMENTS

The Supplier data requirement shall comply with the Supplier Data Requirement List stipulated in the Pride “Sixteen (16) Chapters”.

All documentation shall be submitted solely in electronic format, in accordance with BP project specification 1400-20-GE-SP-0102 – Vendor Data

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	23 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

## 9.0 ATTACHMENTS

Attachment A	Relevant Industry Codes and Standards
Attachment B	General Environmental Data
Attachment C	Relevant Project Specifications
Attachment D	Suppliers Exceptions to Project Specifications
Attachment E	Acronyms
Attachment F	Units of Reference

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	24 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

#### **ATTACHMENT A - RELEVANT INDUSTRY CODES AND STANDARDS**

Unless otherwise stated in this specification the following rules, standards and specifications are to be used as reference on the BP Mad Dog project.

<b>REFERENCES</b>	<b>CODE REFERENCE</b>
American Bureau of Shipping	ABS
American Institute of Drilling Contractors	AIDC
American Institute of Steel Construction	AISC
American National Standard Institute	ANSI
American Petroleum Institute	API
American Society for Testing and Materials	ASTM
American Society of Mechanical Engineers	ASME
American Welding Society	AWS
Instrument Society of America	ISA
International Electrical Commission	IEC
Institute of Electrical and Electronic Engineers	IEEE
International Electrical Testing Association	IETA
International Standardization Organization	ISO
National Association of Corrosion Engineers	NACE
National Fire Protection Association	NFPA
Occupational Safety Health Administration	OSHA
United States Cost Guard	USCG

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	25 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

Unless otherwise specified the following standards and specifications shall be used as reference on the BP Mad Dog project. This list is not intended to be all-inclusive, but is intended to reflect the project guidelines.

CODE REFERENCE	REFERENCES
ANIS B16.5	Steel pipe flange and flanged fitting
ANSI B16.10	Face to face – end to end dimension of ferrous valves
ANSI B36.10	Welded and seamless wrought steel pipe
ANSI B36.19	Stainless steel pipe
API 14 F	Section II “System check out”
API 2C	Specification for Offshore Crane
API 2D	Recommended practice for operation and maintenance of offshore crane
API 526	Flanged steel safety relief valve
API 602	Compact carbon steel gate valve
API 6A	Specification for wellhead and Christmas tree equipment
API RP 14C	Appendix “D” Testing and reporting procedures
API STD 614	Lubrication, Shaft, sealing and control system for special application
ASME B31.3	Chemical plant and refinery piping
IEC 60079	Electrical Apparatus for Explosive Gas atmosphere.
IEC 61982	Mobile and fixed Offshore Units Electrical Installation
IETA Section 7	Inspection and testing procedure.
IETA Section 8	System function test
ISA 7-1	Pneumatic control circuit pressure test
SAE J513	Hydraulic tube fitting
SAE J518	Hydraulic flanged tube, pipe, and hose connection, 4-bolt split flanged type.

		
Company:	BP Deepwater Development	Document No: 1430-60-ME-SP-0013
	Gulf of Mexico	Page: 26 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No: 1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date: February 7th, 2003

## ATTACHMENT B - GENERAL ENVIRONMENTAL DATA

Unless otherwise stated in the technical specification, the Supplier shall use the following as design general data.

### 1.0 Location

The BP MAD DOG platform is located in the Gulf of Mexico (GoM) at:

Canyon Block GC 825, 826 & 782.

Orientation: 10 degrees West of true North.

### 2.0 Environmental Conditions

Load Case Description	Units	1 yr Winter Storm Operating I	1 yr Winter Storm Operating II	10 yr Winter Storm Operating I	10 yr Winter Storm Operating II	10 yr Winter Storm Standby I	10 yr Winter Storm Standby II	100 yr Hurricane Standby
Wind Speed (2)	ft/sec	52	52	64.2	64.2	64.2	64.2	147.7
Vertical Acceleration	%g	0.008	0.008	0.01	0.01	0.01	0.01	0.15
Horizontal Accelerations 135° MLW 215° MLW	%g	0.10	0.10	0.185	0.185	0.185	0.185	0.41 0.44

ABS guidelines shall be applied for wind in determining the wind speed at higher elevations. Wind forces shall be calculated based on API-RP2A-WSD. The above lateral loads criteria are based on simplified methods.

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	27 of 36
Project Description:	Mud Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

The load combinations are as below:

Load Case Description	Units	1 yr Winter Storm Operating I	1 yr Winter Storm Operating II	10 yr Winter Storm Operating I	10 yr Winter Storm Operating II	10 yr Winter Storm Standby I	10 yr Winter Storm Standby II	100 yr Hurricane Standby
Hook Load (1)	Kips	1500	900	300	1000	(1)	(1)	(1)
Rotary Load	Kips	0	0	0	0	800	1400	0
Setback Load	Kips	400	1000	1000	300	1000	400	250
Wind Speed (2)	Ft/sec	52	52	64.2	64.2	64.2	64.2	147.7
Vertical Acceleration	%g	0.008	0.008	0.01	0.01	0.01	0.01	0.15
Horz. Accelerations-Omni	%g	0.10	0.10	0.185	0.185	0.185	0.185	0.41
135' MLW	%g	0.10	0.10	0.20	0.20	0.20	0.20	0.44
215' MLW								
AISC Allow. Stress Factor		1	1	1	1	1	1	1.33

- (1) Add weight of traveling equipment to values. For no hook load cases, the traveling equipment is lowered to rig floor.
- (2) 1 hour mean wind speed @ +10m above MSL
- (3) Horizontal accelerations and wind applied simultaneously in the same direction.

### 3.0 Dynamic Criteria

10 YEAR WINTER STORM	1 HOUR	1 MINUTE	3 SECOND
Hook Load (kips)	1500	1500	1500
Set Back (kips)	1000	1000	1000
Wind Velocity (knots)	38.1	38.1	38.1
Lateral Acceleration (G)	.2	.2	.2
Vertical Acceleration (G)	.03	.03	.03

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	28 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

100 YEAR HURRICANE	1 HOUR	1 MINUTE	3 SECOND
Hook Load (kips)	100	100	100
Set Back (kips)	250	250	250
Wind Velocity (knots)	81.6	81.6	81.6
Lateral Acceleration (G)	.35	.35	.35
Vertical Acceleration (G)	.04	.04	.04

The Transport Environmental Design Criteria (ref. section 6.1.2 of 1400-20-CO-SP-8000) shall be based on appropriate combinations of the simplified criteria presented in the table below.

	AMPLITUDE	PERIOD
ROLL	+/- 20 deg.	10 sec
PITCH	+/- 12.5 deg.	10 sec
HEAVE	+/- 0.2 g	N/A

#### Temperature

Water depth: 4600 feet

Water Temperature 80° F

The Ambient temperature at the location is 32 F (0C) to 92 F (33C).

#### 4.0 Services

- 5.1 Rig air at compressor 120 PSI
- 5.2 Rig air at user 100 PSI
- 5.3 Bulk air 60 PSI
- 5.4 Hydraulic oil 3,000 PSI
- 5.5 Cooling water 40 PSI (to be verified)
- 5.6 Fresh water 40 PSI (to be verified)

#### 5.0 Electrical

- 7.1 Voltage 480 at 60 Hz
- 7.2 Voltage 120/208V at 60 Hz

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	29 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

### ATTACHMENT C - RELEVANT PROJECT SPECIFICATIONS

The following standards and specifications shall be used on the BP Mad Dog project:

REFERENCES	TITLES	APPLICABLE TO THIS SPECIFICATION
1400-20-CO-SP-8000	Load-out, Sea-fastening and Transportation	
1400-20-CO-SP-8002	Onshore and Offshore Lifting	
1400-20-CO-SP-8040	Coating for Structure, Piping and Equipment	
1400-20-CO-SP-8041	Equipment Piping Insulation	
1400-20-CO-SP-8050	Material Receipt, Handling, Storage, Preservation and Protection	v
1400-20-CO-SP-8060	Mechanical Completion Testing	v
1400-20-EL-SP-4000	General Requirement and Installation of Electrical Facilities	
1400-20-EL-SP-4004	Electrical Installation for Packaged Equipment	
1400-20-GE-SP-0100	Special Requirement for Spar and Semi-Submersible Floating offshore Installations	v
1400-20-IC-RP-5070	Instrument Tag, Equipment and Cable Numbering guidelines	v
1400-20-IC-SP-5100	Instrument Installation	
1400-20-IC-SP-5102	Instrument Package Equipment	v
1400-20-IC-SP-5104	General Instrumentation	
1400-20-IC-SP-5193	Instrument Control Panel	v
1400-20-ME-SP-2060	General Pressure Vessel	v
1400-20-PI-SP-3205	Addendum to ASME B31.3 "Process Piping"	



Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	30 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

1400-20-PI-SP-3200	Piping Material	v
1400-20-PI-SP-3202	Valves	v
1400-20-PI-SP-3204	Piping Fabrication and Installation	v
1400-20-PI-SP-3210	Piping Design, Fabrication, Inspection and testing for Package Equipment	v
1400-20-QA-SP-9001	Project Quality Assurance General Requirements	v
1400-20-ST-SP-1002	Topsides Structural Design Guidelines	
1400-20-ST-RP-1004	Stair, Ladder, Walkway and Handrail Design Guideline	
1400-20-ST-SP-1012	Structural Offshore Materials	
1400-20-ST-SP-1014	Structural Welding	
1400-20-ST-SP-1016	Structural Skids	
1400-60-ME-IR-9101	Company Inspection Activities for Drilling Rig Package.	v
1400-20-IC-SP-5100	Instrument Installation	
	BP Contract Exhibits	v

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	31 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

#### ATTACHMENT D – SUPPLIER EXCEPTIONS TO PROJECT SPECIFICATIONS

The following confirms, if applicable, any exceptions the Supplier has raised to the technical specifications, project codes and standards, which have been approved acceptable by BP. These exceptions are to be completed by the Package Engineer as a summary of AS-Built details, for future reference.

REFERENCES	TITLES	EXCEPTIONS
1400-20-CO-SP-8050	Material Receipt, Handling, Storage, Preservation and Protection	<i>This specification is not applicable as equipment is shipped Ex Works. Hydralift will export package the HPU (if option chosen) and issue a Handling, Storage and Preservation Procedure for this equipment.</i>
1400-20-CO-SP-8060	Mechanical Completion Testing	<i>This specification is not applicable as it applies to testing of Hydralift Equipment by the contractor. Hydralift will complete a full Factory Acceptance Test prior to shipment.</i>
1400-20-PI-SP-3200	Piping Material	<i>Enclosed please find H/L's standard Piping Specification submitted as a deviation to this specification.</i>
1400-20-PI-SP-3202	Valves	<i>Enclosed please find H/L's standard Valve Specification submitted as a deviation to this specification.</i>
1400-20-PI-SP-3204	Piping Fabrication and Installation	<i>Enclosed please find H/L's standard Piping Specification submitted as a deviation to this specification.</i>
1400-20-PI-SP-3210	Piping Design, Fabrication, Inspection and Testing for Package Equipment	<i>Enclosed please find H/L's standard Piping Specification submitted as a deviation to this specification.</i>
1400-20-IC-SP-5102	Instrument Package Equipment	
3.3		<i>No third party approval included. See Options.</i>
4.2.8		<i>No vibration probes included.</i>

		
Company:	BP Deepwater Development	Document No: 1430-60-ME-SP-0013
	Gulf of Mexico	Page: 32 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No: 1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date: February 7th, 2003

4.4.1		<i>As standard Hydraulit ASA uses BSPP connections to ease maintenance of the equipment.</i>
5.6		<i>Control will be delivered according to HL standard. No tag numbers included. Only standard nameplate from original supplier attached on valve.</i>
5.10		<i>Included in offer is standard HL marking of valves .All hydraulic components to be marked with position numbers according to flow diagram.</i>
7.1		<i>Piping and fittings according to HL piping spec</i>
1400-20-ME-SP-2060	General Pressure Vessel	<i>This specification does not refer to cylinder design .The cylinders in the Jacking System and BOP transportation system will be designed in accordance with ASME Section 8, division 3.</i>
1400-20-IC-RP-5070	Instrument Tag, Equipment and Cable Numbering guidelines	<i>Hydraulit to use their standard tagging system linking the hydraulic and electrical components to their P&amp;IDs and electrical block diagrams</i>
1400-20-IC-SP-5102	Instrument Package Equipment	
2.2.1		<i>RP500 or RP505 to be included</i>
3.0		<i>Equipment to be IEC / Cenelec approved.</i>
4.1		<i>Functional logic diagram will not be delivered</i>
4.2.7		<i>Cause and effects matrix is not included</i>
5.1		<i>Hydraulit equipment certified to Cenelec / IEC</i>
5.10		<i>Hydraulit to use their standard tagging system linking the hydraulic and electrical components to their P&amp;IDs and electrical block diagrams</i>
1400-20-IC-SP-5193	Instrument Control Panel	
1.0		<i>Panels shall be IP56</i>
5.0		<i>Tubing and fittings to be per HL piping specification</i>

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	33 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

#### ATTACHMENT E - ACRONYMS

The following are standard, acceptable acronyms for the BP Mad Dog project:

ABL	Above Base Line
ADS	Automatic Drawwork System
AFE	Approved/Authorized for Expenditure
BHA	Bottom Hole Assembly
BHP	Brake Horse Power
BOP	Blow Out Preventor
CCTV	Closed Circuit Television
CFE	Contractor Furnish Equipment
CFM	Cubic Feet per Minute
CoG	Center of Gravity
DW	Rig & BOP Skidding Equipment
EFF	Efficiency
EIPD	Electronic Information Procedure Document
ESD	Emergency Shutdown System
FAT	Factory Approval/Acceptance Test
FJE	Flush Joint Elevator
FPS	Feet Per Second
GoM	Gulf of Mexico
GPM	US Gallon Per Minute
H2O	Water
H2S	Hydrogen Sulfite
HIP	Hydraulic Inlet Panel
HP	Horse Power
HPMP	High Pressure Mud Pump
HPU	Hydraulic Power Unit
IR	Iron Roughneck
KIPS	Kilo (1000) Pounds per Square inch
Lbs	Pounds Imperial
LWD	Logging While Drilling
MAWP	Maximum Allowable Working Pressure
MAWP	Maximum Allowable Working Pressure
MCC	Motor Control Center
MDMT	Minimum Design Metal Temperature
MMI	Man Machine Interface
MSS	Manufacturer Standard Society
MWD	Measuring While Drilling
NIC	Not In Contract

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	34 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

NPS	National Pipe Size
NPT	National Pipe Thread
NTD	None Destructive Test
OFE	Owner Furnished Equipment
PA	Public Address
PENS	Project Engineering Numbering System
PLC	ProBOPmable Logic Controller
PPG	Pounds Per Gallon
PQR	Procedure Qualification Record
PRS	Pipe racking system
PSF	Pound per Square Foot
PSI	Pound per Square Inch
PTA	Pipe Tailing Arm
PTC	Pipe Transfer Conveyor
PTS	Pipe Transfer System
PVT	Pit Volume Totalizer System
PWD	Plugging While Drilling
PWHT	Post Weld Heat Treatment
QA	Quality Assurance
QC	Quality Control
RE	Reynolds Number
Rh	Hydraulic Radius
ROP	Rate Of Penetration
ROV	Remote Operated Vehicle
RST	Rotary Support Table
RT	Rotary Table
s.p.g.r.	Specific Gravity of liquid
SAW	Submerge Arc Welding
SCFM	Standard Cubic Feet per Minute
SDRL	Supplier Data Requirement List
SJE	Single Joint Elevator
SPM	Strokes Per Minute
SWCGDS	Supplier Weight Center Gravity Data Sheet
SWL	Safe Working Load
Sy	Yield Stress
TDS	Top Drive System
ToS	Top of Steel
TTM	Trip Tank Monitoring System
UNC	United Standard Coarse
UNF	United Standard Fine
UT	Ultrasonic Test

			
Company:	BP Deepwater Development	Document No:	1430-60-ME-SP-0013
	Gulf of Mexico	Page:	35 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No:	1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date:	February 7th, 2003

VDU	Visual Display Unit
VFD	Variable Frequency Drive
VOCC	Varco Operator Control Console
WHP	Water Horse Power
WOB	Weight On Bit
WPS	Welding Procedure Specification
YFE	Yard Furnished Equipment

		
Company:	BP Deepwater Development	Document No: 1430-60-ME-SP-0013
	Gulf of Mexico	Page: 36 of 36
Project Description:	Mad Dog Project – Drilling Facilities	Revision No: 1
Document Title:	Specification for Rig & BOP Skidding Equipment	Revision Date: February 7th, 2003

#### **ATTACHMENT F - UNITS OF REFERENCE**

Unless otherwise specified, the BP Mad Dog project shall use the following units:

REFERENCES	TITLES
Linear	Feet and inches
Surfaces	Feet/inch square
Volume	Cubic feet U.S. gallon Barrel
Weight	Pound (LBS) Kips Pound per Gallon (PPG) Short tons
Temperature	Degree Fahrenheit
Pressure	PSI PSF
Speed	Miles per hour (MPH) Feet/sec (ft/sec)
Angle	Degrees, minute, second Decimal of a degree

